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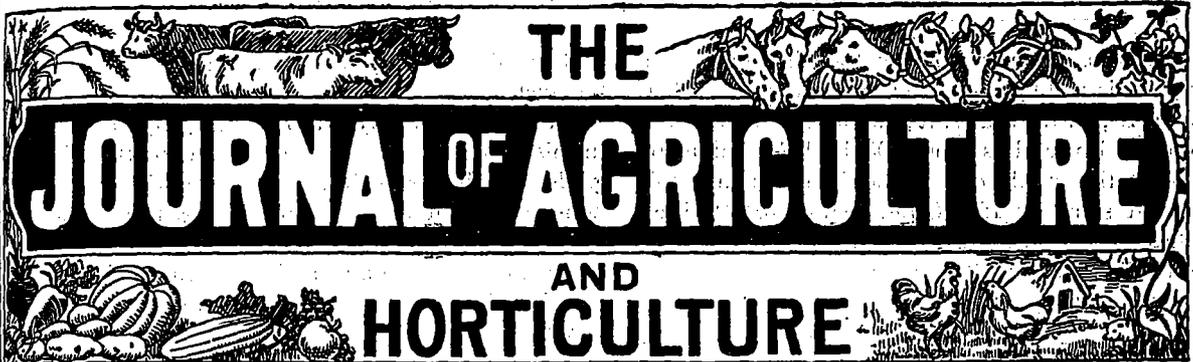
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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

VOL. 2. No. 9

This Journal replaces the former "Journal of Agriculture,"
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NOVEMBER 1, 1898

.. THE ..

Journal of Agriculture and Horticulture

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bi-monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture &c. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

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Notes by the Way.

Judging.—We were glad to see that, at the last exhibition of the Montreal Horticultural and Fruit-growers' Association, there was only one judge in each department. The practice, too common here, of consociating three men, each of whom may be thoroughly skilled in the qualities of one individual breed of stock, into a set of judges who are to determine the value of the special characteristics of half a dozen different breeds, each of which, to be perfect, must possess specific qualities, is too absurd to need reproof; yet, it is but too common at our country shows.

We remember, years ago, acting as judge of cattle in general at the Provincial Exhibition, in association with two others, one of whom had never seen a Jersey in his life, and the other had only seen one specimen of that breed, though both of them were thoroughly well skilled in the qualities needed to distinguish a good from a bad Short-horn; a Devon neither of them had ever seen, and they thought it was almost impossible to say wherein a Galloway differed from a Polled-Angus!

In 1852, we went to the Norwich Exhibition (England) with our dear old farm-tutor, Wm. Rigden, who was supposed to be the best judge of Southdowns in England, always excepting the father of the modern type of that breed, Jonas Webb, of Balraham. Seeing Rigden standing alone, while the other two judges were in the sheep-ring, we asked him why he was not with them. "Oh! he replied, they are long-wool men, and the Leicesters and half-breeds are now under consideration. Of course, I know a Southdown, but I do not pretend to be a judge of any other breed."

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Potatoes.—The crop of potatoes, in Canada as a whole, is said by statisticians to average 90 bushels an acre; in the States, it is about the same. The crop in England is about 205 bushels; taking 60 lbs. as the weight of a bushel in either case, this would stand as 12,320 lbs. against 5,400., i. e., the crop in Britain has the advantage over the Canadian crop of 140 per cent.

Now, allowing in both cases pretty wide planting, 27 x 12 inches, the number of sets, or plants, in an imperial acre would be 19,360; consequently, the weight of the tubers in each plant, in the Canadian yield of 5,400 lbs., would be a tiny fraction over 4 ounces. May we not fairly say that there must be something very wrong here? For if this is the condition of the *average* crops, what must be the condition of the bad, inferior crops?

Weather, etc. in England.—We received, last week, a letter from a landed proprietor in Herefordshire and South-Wales, full of most disappointing news regarding the state of the grazing lands in those districts. "In Herefordshire, the writer says, there is not a blade of grass, and the farmers are obliged to begin upon the hay-stacks to keep the cattle from going back!" There had been no rain worth mentioning for some time, since only one-seventh of an inch had fallen during the first 26 days of September. From nearly every district there are complaints of dried up pastures, root-crops languishing, short supplies of water; in towns as well as in the country; a failing yield from cows, and land so hard to plough, that the usual catch-crops of vetches, rye, and trifolium have not been sown; to say nothing of the impossibility of ploughing the clover-leys for wheat, which operation is usually done some time before sowing to allow the land to become consolidated before the seed is committed to the soil.

Hops have come down so much lighter than was expected that the estimates have fallen as low as 350,000 cwt. (112 lbs.), the smaller yield since 1890, when the official estimate was only 283,629 cwt. In 1897 the yield was 411,086 cwt., and in 1894, 621,846 cwt. The Secretary of the Hop-growers' Association puts the world's crop at 1,450,000 cwt., and the consumption is reckoned at 1,634,000 cwt., though some place it as high as 1,845,000 cwt.; at any rate, there must be a considerable deficiency; consequently, prices,

that are high already, are commonly expected to be much higher.

We do not grow any very large quantity of hops in this province, but there are some pretty fair gardens in the townships, and though growers are none too careful in the drying, we used to find a decent lot here and there that would serve for the brewing of common ales and porter in England; and though there may not be much to spare, still, it would be well to send a few pockets over to that market as an experiment. Our barleys, as far as we can find out, are very likely to be admitted at a lower rate of duty into the States, where they are well liked.

As for hay, we really do not know what to say about it. In spite of the enormous crops of both meadow and clover-hay in England, the early autumn has, as we said above, been so severe on the pastures, that the best clover-hay is now selling in London at \$25.00 a load of 2,016 lbs. Of course we have none of that quality here, as we persist in allowing it to stand too long before mowing, but surely there must be lots of decent stuff about that would fetch from \$12 to \$15 a load, and it should pay better to export that than to let it go for 5 to 6 dollars (20 s. to 24 s.) a ton here, which we believe is about its value in the Montreal market.

Two Glo'stershire men, who met us a few days ago, were in an awful state of astonishment at something they had seen at Three-Rivers. "Why! as we were walking along the side of the river, we found acres upon acres of first-rate crops of clover all standing uncut!!! What on earth is the meaning of it? And we hear that cattle have to be kept in-doors for seven months every winter! Are the people all mad that they sacrifice the most valuable of all their fodder-crops in this way?" All we could reply was that we had done our best to bring about a better state of things, and, here and there, there were signs of an improved feeling, as at Ste-Anne's we had overcome the prejudice of a leading farmer of that district, and, though he protested earnestly for some weeks that on no account would he touch the second-crop, yet he yielded to argument at last, and, as we mentioned before, down it came on the 12th of August, and was got in, in perfect order, at a very trifling cost, the plan of making followed being the South-east of England plan, namely, to meddle with it as little as possible. Indeed, it was carried from the simple inverted swathe, only

about half an acre of it having been put into cock, as the rain overtook the men as they were finishing the job.

The price of wheat in England still varies a good deal according to locality. While our Herefordshire nephew tells us that, in his part of the country, it must be prime stuff to fetch 3s a bushel (72 cts.), at Reading, Berkshire, it is quoted a shilling (24 cts.) higher; and this in spite of railroads and canals. In past years, i. e., in the 17th century, it was not an uncommon thing for wheat to be a drug in Surrey, while in the Weald of Sussex, close by, the winter-roads were in such a state that the surplus of that clay-district could not get to market any how: see Macaulay's History of England, vol. I, chap. III, and this only 200 years ago.

Bacon-hogs.—So much in earnest are the bacon-curers of Ireland, that they have gone so far as to invest money in England in the purchase of well-bred Yorkshire boars, and to distribute them, gratis, among the farmers of the southern counties. In this country, there is a good deal of ill-feeling among the breeders and feeders of pigs because the bacon-factories do not make a sufficient difference in the prices paid for hogs fit for their trade and the ordinary corn-fed hogs suited only to the business of the pork-packer. "One way to educate the farmer, says the Toronto agricultural paper, *Farming*, is to touch his pocket, and if our bacon-men would pay enough more for first-rate bacon-hogs than for thick fat ones, to make it worth his while to grow and raise the bacon-hog, he would soon put himself in a position to do so. If the price of the bacon-hog were one dollar a cwt. more than for thick fat ones, instead of from 25 cts. to 40 cts. as it is at present, we venture to assert that our farmers would soon provide themselves with the right type of hog for bacon-producing purposes." We do not think the writer dreams of anybody of bacon-curers, in this country, imitating the Irish Association in giving away boars to the farmers, and if he did we should oppose his conclusions vigorously. But we do think that it would be a good thing if a greater difference in price between the bacon-hog and the salt-pork-hog were made, as, before very long, the farmer would find out that it would pay him well to provide the sort of animal the market demands.

We understand that Prof. Robertson has under-

taken, with the consent of the Dominion government, to conduct a series of experiments on hog-feeding in Western Ontario, to try and discover the cause of what is known as soft hog and soft bacon. If he can find out in his experiments how to combine plenty of lean pig-meat with tenderness of texture, he will be conferring a benefit on all lovers of smoked hams; for, at present, we cannot, here in Montreal, get such a thing as fat bacon for love or money, and the lean hams sold by the leading pork-butchers are so tough, or rather hard, that the greatest attention to the simmering, and not boiling, of the ham will not make them acceptable food.

*In reference to the Presidential address of Sir William Crookes, Dornbusch says:—*It is hardly necessary to point out to anyone who follows trade and crop statistics that the figures of the learned President being lamentably astray, it follows that his assumptions of scarcity cannot be sustained. Sir William Crookes says according to the best authorities the total supplies from the harvest of 1897 were, 921,000,000 bushels, whereas our own estimate, prepared from official returns, mounted to 2, 211,100,000 bushels. Again the President's statement that the cereal year 1897-98 began with a deficiency of 103,000,000 bushels, will not hold water, for the World's Visible Supply, as duly reported in the *List*, was over 60,000,000 bushels, to say nothing of the invisible supply in first hands, which was probably another 60,000,000 bushels. There are other points upon which practical men cannot see eye to eye with the man of science, who has not grasped the probabilities, or else makes too little of the future Wheat fields of the world. Why, in Queensland alone it is computed there are still 50,000,000 acres of virgin soil suitable for growing wheat, while the Danubian Provinces and Asia Minor are only on the threshold of possibilities.

The Orchard and Garden.

(CONDUCTED BY MR. GEO. MOORE).

THE CITY GARDENS OF QUEBEC.

The Ancient Capital, contrary to the wishes of some, has undergone a remarkable change during the last few years. Many old land-marks have been removed; the old city-gates taken away, or

replaced by modern structures ; several elegant public buildings erected ; the swinging signs, so characteristic of the old world, abolished ; the principal streets concreted, and a well organized electric car service established, by means of which passengers are conveyed up the numerous hills without the inconvenience of climbing what used to be called, not inaptly, break-neck stairs, and where these are still necessary, substantial iron steps have replaced the rickety and dangerous ones which had stood for centuries. Whatever disadvantages there may be as regards the picturesque antiquity of the city, there is no doubt that the modern improvements have rendered it a far more healthy and agreeable place of residence.

And it is gratifying to remark that, in the march of progress, public parks and gardens have not been lost sight of ; places which a few years since were malaria-breeding morasses or unsightly heaps of rubbish are now converted into fresh and beautiful lawns and blooming parterres. And not in the upper Town only, where are the dwellings and resorts of the élite, have these been provided for the delcctation and recreation of the citizens, but the working classes of St-Roch and St-Sauveur have not been neglected, and a beautiful park, which is also accessible from all parts of the city by electric cars, has been laid out in their district. A most unpromising spot, a mere swamp, bordering on the St-Charles river, seemed to be the only available place and this was well underdrained and laid out with grass plats, walks and flower beds and planted with shrubs and trees. The place, including the green-houses where the large number of bedding plants required for all the other squares and gardens are raised, and which are to be enlarged so as to form a Winter Conservatory, is in excellent keeping, but mistakes have been made in the laying out and planting. Beds have been placed in such a position as to decrease the expanse of lawn ; the walks have no bold and graceful turns, and many of the trees are not suitable for the locality and conditions. Anyone who has studied the subject at all should know that the Rock Maple will not grow on low land and then the trees planted were not likely to succeed, being too large to begin with, every branch was lopped off, and they are now looking like small scaffold poles.

If moderate sized elms had been planted like those at the Quebec & Lake St. John R. R. Station, and on Grande Allée, which where placed

there by Sir H. G. Joly de Lotbinière, they would, as those already do, form objects of beauty in a short time. However, the park is there, an honour to the mayor, Mr. Parent, whose name it bears and who suggested its construction, being also sometimes called Victoria Park as it contains a statue of Her Majesty which appeals to the loyalty of all Canadians, and the few mistakes as to planting will be corrected as soon as the poles are removed and time does its work.

The carpet-bedding in front of the City hall and on the late site of the old House of Parliament is excellent, especially the beds which have been made to commemorate the inauguration of the Champlain monument. These are formed of Alternantheras and other very dwarf bedding-plants ; the letters are very well formed and distinct, the colors brilliant and well contrasted, and when seen by the glare of electric light, on the occasion of the late ball given by the citizens to Lord and Lady Aberdeen, were excellent examples of what can be accomplished in carpet designs made with bright foliated plants suitable to the purpose. This is just where such designs are in place.

The Provincial Government has also had an eye to the beautiful in the floral embellishment of the Parliament grounds which, partly on account of the favourable season, and partly on account of the artistic taste displayed in their arrangement, are, this year, surpassingly beautiful. Old Quebec has awoke from the slumber of routine which has been attributed to her for so long, and her public gardens, parks, and squares, so far as floral beauty is concerned, are not surpassed by any city in the Dominion. The effect, socially and morally, cannot fail to be highly beneficial.

THE CROPS IN THE NEIGHBOURHOOD OF QUEBEC

A little tour round the City of Quebec reveals the gratifying fact that the crops are generally good, the peculiar state of the weather during the past summer having been very favourable for them. Potatoes, although not large, are of a good marketable size ; abundant in quantity and perfectly sound. The weather is exceptionally fine for digging them, which is getting on fair. The varieties originating from the old early rose are the favourites, and even the old mother of them is getting back into favor and is free from rot. The

best I saw were on the farm of Mr. Egan of Ste-Foye road; they were the "white star" and "wonder." This gentleman's crop was excellent, clean of weeds, and the land was being left in good condition for the next crop, showing what good cultivation will do. The roots, cabbages, and corn on this farm were highly creditable to the young man who farms the place, and it is a pleasure to testify to this, publicly, for his encouragement and that of others who would do well to follow his example. Again, on the north side of the City, at Gros Pin, the farm of Mr. Thos Byrne was visited, and exhibited similar marks of careful cultivation, although the land is of a different quality, and in a wet season, more difficult to work. Mr. Byrne is one of the Quebec pioneers of market gardening, and by dint of the most assiduous perseverance has succeeded in raising, not only the best crops of all kinds, but a numerous family, well educated, and filling responsible positions; thus affording an object lesson to young men of the present generation; for whom it will be well if they go and do likewise. The cabbage worms at the beginning of the summer were doing the plants much damage, but with characteristic energy the family set to work to pick them off by hand, and used other means by which most of the crop was saved. A large quantity of celery is grown on this place, but has suffered from a peculiar kind of blight, similar to that which attacks the potatoes, evidently caused by the growths of a fungus of the same description. I noticed the same blight on celery grown by a large grower in Middlebury, Vermont, and he told me that he sprayed part of his crop with Bordeaux mixture twice while it was growing, with the result of effectually checking the disease. This may be a useful hint to the growers of this popular esculent. There is an increasing demand for all kinds of vegetables in the City of Quebec, but prices rule rather low for the producer; and it is evident that only the best quality will realize anything like remunerative figures, and command a ready sale; therefore, to be successful, the producer must be diligent and determined to adopt such methods as will cause his products to be of superior quality.

HARVEST

There is no season of the year so full of interest to those engaged in rural affairs as harvest time.

With what delight and gratitude to the Giver

of all good does the prudent cultivator gather in the fruits of his labor, and although many difficulties have been presented to him in the course of the cultivation of the crop, he will note with satisfaction that they have generally been overcome, and the victory; if he has faithfully done his part; is on his side.

Of course there are exceptions to this rule, and sometimes failure will result in consequence of climactic conditions which he cannot control, but taking the average of years, the man who promptly and perseveringly does his duty need not fear but that his efforts will be fairly remunerated. In nine cases out of ten we shall find that the croakers have themselves to blame; proper care has not been paid to the preparation of the soil, unsuitable or insufficient fertilizers have been used or what is a more common fault here, planting has been delayed, and no attention, or at least only a little, given to after cultivation while insects and fungoid enemies have not been watched for and promptly destroyed by the various means which have been discovered by science, and proved by experiment, to be effectual, and which have now been so frequently described in the Agricultural and Horticultural press that it is the farmers' and orchardists' own fault if they do not understand the necessity of using them, their composition, and method of application, and put their knowledge promptly into practice.

Nelson exclaimed at the battle of Trafalgar: "England expects that every man this day will do his duty" and, paraphrasing this, we may say that God demands that every man shall nobly do his duty, and this duty is as well rewarded in the harvest field as at the cannons worth. Peace hath its victories, no less than war, and he who adds to the wealth of his country by good management of his land achieves a victory which, taken in the aggregate, is as important as the conquest of the warrior or the success of the diplomatist. And he is the man whose heart is attuned to thanksgiving for the satisfaction of having done his duty and can truly enjoy the blessed *harvest time*.

EXPEDITIOUS POTATO DIGGING

The probabilities of bad weather when the potato crop is ready to gather makes it a matter of considerable importance that the work should be done rapidly, and where there is a large acreage grown,

a good digging machine is valuable. Such a one was working lately on the field of Mr. John McClish at Ste Foye, near Quebec, and as it seemed to be doing good work, I had the curiosity to take note of the time occupied to secure the roots on two drills. In seven minutes the tubers were all brought to the surface and in 20 minutes more, 18 bushels were picked up by two men and placed in sacks. The crop (Chilis) was not an average one or no doubt the result would have been better. The tops and weeds were all shaken free of earth and left on the surface. On light potato soils there is no doubt that the potato digger is a very useful labor saving and as I have remarked is employed at a time when expedition is as important as economy especially to large cultivators.

THE PLANTING OF FRUIT TREES AND BUSHES

BY THE REV. FATHER-TRAPPISTS.

(From the French)

(Concluded.)

The Strawberry

The strawberry is an excellent fruit, very wholesome, and, with a little care, a crop may be had all the season.

Strawberries may be divided into two classes: the large fruited, producing only in the spring, and the "four seasons," giving small fruit, highly scented, during the whole summer.

Among the large fruited, the most to be recommended are:

Jumbo.—Large, red and white, of exquisite flavor and remarkably early.

Wilson's Albany.—Not quite so large as the preceding, brighter red and more productive, flesh, more highly scented, and more delicate in flavor.

Duc de Montmorency.—A new variety, which produces abundantly and is of the greatest hardness.

Strawberries of the class preserve the generic name of "Four seasons"; the fruit varies but very little.

The strawberry requires a mellow soil of medium consistency manured the preceding year; it dislikes fresh dung and needs constant moisture; consequently, care should be taken to plant strawberries, on beds so arranged that the rain will not

easily run off. The runners are the plague of the strawberry; they exhaust the mother plant, and injure the quantity and quality of the fruit. They should be cut off on all strawberry plants, as soon as their appear, whether small or large fruited.

After bearing for three years, the plants produce very little, and it is better to make a new plantation, renewing a third part each year.

Preparation of the soil.—We have seen that the strawberry plant does not like fresh manure; consequently, the soil intended for strawberry culture should received 45 bushels of wood ashes to the acre mixed with pigeon or poultry yard dung; trench the land two spits deep (1) and harrow so as to level the land and mix the manure thoroughly with the soil.

Planting.—Trace lines the length of the ridge, 1 to 1½ foot apart if a garden, and 3 feet if in a field, so that a horse hoe can pass between the rows. Plant strawberries as you would vegetables, the space between each plant in the row should be 18 inches. Immediately after planting, give a good watering if it seems necessary. The subsequent work required is hoeing and the destruction of the runners.

Planting in the month of August always succeeds well. The advantage of planting at that time is that a year is gained in the production of fruit.

At the beginning of winter (2) cover the plantation of strawberries with straw or dead leaves. It is well also to scatter green branches over the beds to assist in the accumulation of snow.

The Raspberry

The Raspberry likes light and gravelly land, wet, cold soils do not suit it. The soil should be deep and rich; left to itself, the raspberry yields but little fruit; small and without flavor. The care and culture consist in frequent working of the soil, and taking away the branches that have borne fruit. The stem (or cane) grows one year, produces fruit the next, and then dies. Taking off these old canes is done immediately after the crop is gathered. The suckers that start from the root must be considerably reduced in number; otherwise, they would cause confusion and exhaustion of the plants.

(1) Or subsoil it 18 inches deep.

(2) Not till the ground is frozen.

The best varieties are :

Caroline.—Fruit yellow, plant vigorous and hardy.

Cuthbert.—Fruit red, plant vigorous ; remarkable for the superior quality of the berry, it always brings the highest price.

Golden Queen.—Golden yellow, highly recommended, plant vigorous.

To the above, may be added which may be ranged among the blackberries. (1)

Kittatinny Black Cap.—Fruit very large, flesh rich and excellent. Sets well.

Wauchuset thornless.—Fruit medium size, of good quality. It is an advantage to the two last varieties to pinch off the extremity of the young shoots when they are 10 to 15 inches high, this pinching causes them to send out side branches which increases their production of fruit.

The Gooseberry

This demands rich, warm soil ; it yields abundantly but has to be closely attended to, for if neglected it will send up a multitude of gross feeding shoots, which will absorb all the sap, to the detriment of the fruit. The pruning consists in cutting off these and keeping the interior of the bush open, taking away dead branches or shortening in those which drag on the ground, and prevent the fruit from being gathered.

The best varieties are :

Downing.—Fruit large, pale green, plant vigorous and productive.

Houghton's seedling.—Fruit small, pale red, the plant is vigorous and hardy, and bears in abundance.

Industry.—Fruit very large. Plant succeeds well and yields well.

Gooseberries are invaded by legions of caterpillars, which quickly destroy all the leaves. When the fruit is partly formed, Parisgreen should be applied ; when larger hellebore, 1 oz. of powder to 3 gallons of water.

The Currant

Currants are bunched gooseberries. They will grow in all soils but prefer light land ; the same pruning is required as for the gooseberry.

The best varieties are :

Cherry.—Fruit large, red, sweet, vigorous.

Fay's prolific.—Red : an abundant bearer.

La Versailles.—Rose color, slightly acid.

White grape.—White, best for the table.

Black Champion.—Black, very vigorous in growth.

Lee's Prolific.—Black, an abundant bearer.

Black Naples.—The best of the three varieties of the black currant.

The same treatment is employed in the destruction of caterpillars as for the gooseberry.

Currants sell well, and from them can be made a syrup much esteemed, and excellent family wine.—(Eugh ! A. R. J. F.)

Asparagus

Asparagus is assuredly a most delicious and wholesome vegetable ; its culture is very profitable, when well attended to. Some farmers fancy that its culture is very difficult, and that it demands exceptional land, abstaining, on that account, from growing it, and are thus deprived of a considerable source of income. Let them try it, and they will soon be convinced that the difficulty is apparent and the profit real.

Purchase of the roots.—The roots of asparagus are called "griffes" by the French, because of their similarity in form to a bird's claw. Buy your plants from a trustworthy firm, that makes a specialty of their culture. Nothing gained by sowing the seed and growing the plants ourselves.

Preparation of the soil.—Asparagus prefers calcareous soil of medium consistency, rather light than heavy, and not too moist. With the addition of manure and some calcareous matter we can obtain asparagus in the good soil. When the land is very compact, it is useful to give it a ploughing before the frost and leave it so during the winter. In the spring spread the manure and give it another ploughing two spades deep (*i. e.* 18 inches).

Planting.—When the land is well ploughed and levelled, place stakes 4 feet apart to form the beds, then open tranches 8 inches deep and 18 inches wide, into these place half rotten manure and mix it with the earth. Now place the little stakes in the tranches to be occupied by the plants, 4 feet apart, and put two or three handfuls of manure opposite each.

When all is prepared make a little mound of earth in the middle of the trench at the place marked to receive the plant which must be placed on this mound and the roots which must not be

(1) *Mûre sauvage*, or, *mûre des haies*; the mulberry is a largish tree only grown, in England, in the neighborhood of London. Brought in by the French silk-weavers after the revocation of the edict of Nantes.

broken, spread round it; cover these with one or two inches of earth, making it adhere to their extremities by a little pressure; then, cover with manure, but without covering then crown, and level the soil—there should be reserved between the lines of trenches a little earth to be levelled the second year.

It is well, after planting, to place a stake by which to recognize where the root is set, so that it may not be injured.

The best season to plant is the month of April or the commencement of May.

Never plant in rainy weather, or the roots will rot.

Subsequent care.—The first year, weed and clean the beds, and water them when the season is too dry. In October, at the latest, pull down the little mounds, and top-dress the soil with manure, leaving it thus for the winter. As soon as the weather permits in the spring, bury the manure with a flattened digging fork, clearing away carefully the dead branches, leaving none round the crowns. Bring back the earth which has been mellowed by the frost and which will give an easy passage to the growth of asparagus. Asparagus should not be gathered after the end of June, so as to save the succeeding crops. In gathering asparagus, it is best to break it off with the fingers.

About the third year, a crop may be cut, but only one or two heads of asparagus from one hill. The fourth year, there may be a full cutting, provided the land be heavily manured afterwards. The third year cut the largest asparagus only. We should not cut the asparagus stalks while they are growing, for we thus destroy a part of the next year's crop. It should only be cut when the leaves have turned yellow and have ceased to grow. When we want extra fine plants, pluck off the seeds as soon as formed.

Calendar of work for each month

January and February.—Look over the fruit room, pack and send off the fruit sold. Tread the snow round the base of the trees to prevent the mice from eating the heart.

March.—Prune the orchard, and do not fail to level and destroy the rings formed by the eggs of the caterpillars. Tread down the snow at the foot of the trees as before.

April.—At the beginning of the month, those who have trees in cellars may prune them and get them ready to plant. Begin planting as soon as the snow has disappeared and the land is dry

enough. Unmound the apple trees; prepare the land for asparagus.

May.—Finish planting. Unearth the vines and trellis them, level the earth so as to cover the roots. Apply Bordeaux mixture to prevent the Black Knot on the plums and for the apple scab. Employ the American grafting wax to cure the wounds made all round the stem by the mice. To re-establish the circulation of sap, forcibly interrupted by the disappearance of the bark, take a piece of a one-year-old branch, a little longer than the width of the bark destroyed, and cut the two extremities like the mouth of a whistle. Slide one into the upper side and the other into the lower side of the injured bark: if required, the bark may be split to facilitate the operation. So long as the splits are on the same generator (*sap vessel*).

The two extremities of the branch being fastened to the two edges of the wound, the sap can circulate to the extremities of the roots in passing through this branch. If the tree gnawn is large, several of these may be introduced.

June.—Finish all planting that is not done, though it be too late; prune the orchard, pinch all premature shoots of the vine, to favour the development of the leading one. Sprinkle the gooseberries and currants with hellebore to destroy caterpillars.

July.—Make a second application of Bordeaux mixture to destroy insects and fungi. Apply coal oil emulsion against the greenfly, pinch the buds of the vine. Thin the fruit of overloaded apple trees; put props under branches which are bent by the weight of fruit. Gather cherries, gooseberries and currants.

August.—Clean the orchard, gather the first summer apples, yellow transparent, Tetofsky, etc.; prepare the ground and plant strawberries. Prune the fruit branches of the vine to two leaves above the last bunch.

September.—Gather the last summer and the autumn fruits; weed and hoe again, if the summer has been dry.

October.—Gather autumn and winter fruit in fine dry weather. Commence preparing the land for planting the following spring. Those who like to get in their trees in the fall, will receive them this month and store them in the cellar. Earth up and lime the trees in the orchard, and cut off the broken branches. Gather the grapes, prune

the vines for wintering; cut the stems of asparagus.

November.—Continue to prepare the land for spring planting; cover the strawberries with straw or dead leaves.

December.—Attend to the fruit in the fruit-house; commence drying the fruit. Tread the snow round the trees as before.

G. REYNAUD,

Nursery-man to the R.R. PP. Trappistes.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

The long winter evenings are coming, in which there will be plenty of time to lay up a bountiful supply of knowledge for future use.

There is plenty of time for the solid as well as the frivolous part, but let not the latter have full sway, or at the end of the winter there will be only regret for a lost opportunity.

It would be a dull world if all people were alike; fortunately for us, there are those who are so constituted that to see them fills one with pleasure and to listen to them is an education.

This kind of person goes about the world with open heart and eyes that take in every thing by the way. They are gifted with wonderful memories which enables them to store up in their minds many happenings, small and great, for future use, and are always ready to relate them to the first listener.

They can also amuse themselves by their own thoughts and forget for the time being many little worries that might develop into greater ones, if once allowed to take full sway of the mind at the time being.

Some of these long evenings might be spent in reading up the history of our own country, a knowledge of which many young country people are sadly wanting in, and if it were read aloud to the family so much the better. I am quite sure when it came to the exciting part (of which there is plenty), the young children would gather round and listen with awe to the wonderful time, when our hardworking ancestors had to toil hard all day to establish a home in the forest, and often to watch and fight during the night to keep the same, and defend themselves and their women from a cruel death.

These men came from a hardy race; some of them were driven from their native land for religion's sake, and were thankful to find a free home even if it were in the wild forest; so they fought the natives and worked hard for home and conscience.

We who are now reaping the fruits of all these hard times should feel thankful to these good people who paved the way for us, and when we feel discouraged with the hardships of our lives, have only to open a page of the book, and seeing what these good men did for us. I hope we should feel inclined to hide our heads with shame at our selfish ingratitude.

A very good history of Canada is that written a few years ago by J. G. Bourinot, C.M.G., L.L.D. D.C.L., Clerk of the Canadian house of Commons &c., &c.

BENGAL CHUTNEY SAUCE

One pound of sugar.
 Half pound of salt.
 Half pound of mustard seed.
 Quarter pound of onions.
 Quarter pound powdered ginger.
 Half pound raisins stoned and chopped very fine.
 One ounce cayenne pepper.
 Three quarts of vinegar.
 Thirteen large apples of a sour sort.
 The mustard seed carefully washed and dried in the sun or by the fire.
 The onions shred and pounded very fine.
 The apples peeled and the cores taken out boiled in the vinegar and bruised with a spoon. When cold all the ingredients to be mixed together.
 A few tomatoes boiled with the apples are a great improvement. (Canned ones would do.)
 This sauce improves by keeping.
 This recipe was given me by one who has spent many years in India, so is quite genuine.

TOMATO CHOW-CHOW.

To make Tomato Chow-Chow take half a bushel green tomatoes, one dozen onions, one dozen green peppers; chop all together very fine, and sprinkle over one pint of salt, let it stand all night, then drain off the brine, cover with good vinegar, cook slowly for one hour, then drain and pack in a jar, take two pounds of brown sugar, two tablespoonfuls of cinnamon, and one each of allspice, cloves,

pepper, and celery-seed, all ground together except the celery-seed, half cup of mustard or two ozs. mustard seed, one pint of grated horseradish, vinegar sufficient to mix them, and when boiling hot pour it over the contents of the jar; cover tight.

THE DINNER MAKERS.

Beauty Dependent Upon Cooking.

A lecturer recently said; "The question of physical beauty in a family turns on food. Race improvement and personal charms, such as size, form and complexion, must be settled in the kitchen. We are not as grand a race as we should be, and may become by a proper attention to dietetics." He might have added, "nor as prosperous as we shall be when we have learned how to be well fed on less money than is at present expended by those ignorant of the possibilities of thrifty cooking."

BOIL POTATOES BEFORE BAKING.

A good rule for baking potatoes is to wash and boil them in the usual way till nearly done and then finish by baking. They are whiter and more mealy than when baked the old way.

ANOTHER NICE SUPPER DISH.

Procure a tinned tongue, and with part of it you will be able to make a most tasty and effective supper dish. Take some clear stock, flavoured delicately with vegetables, season with pepper and salt, and add sufficient gelatine to it to make it set. Boil together, then set aside to cool. Grease a round cake tin with oil, pour some jelly into it, and let it set. Now place on the jelly a layer of very thin slices of hard-boiled eggs. Scatter chopped tarragon and chervil round the sides of the mould. Repeat this till the tin is full. Leave until set, then turn out and serve. The tongue should have the skin removed and be carefully trimmed into even slices before being placed in the jelly.

SOFT CREAM OMELET

Beat six eggs light. Heat together in the chafing-dish until they are just at the boiling point, one teaspoon of butter and one-half cup of milk (cream is much better). When the butter and milk are just beginning the boil add the eggs. As

soon as the mixture begins to set begin to stir, and continue to do so until there is no liquid left, it all having been transformed into a delicious, flaky omelet. This makes a capital breakfast dish, and one that can be cooked in five minutes.

DELICIOUS FRIED EGGS

Melt just enough butter to grease the bottom of the pan, then add the eggs, taking care not to break the yolks. Cover, and cook till the white is all set, or longer if you like the yolk hard. Eggs fried thus are immeasurably better than when cooked by the ordinary method.

TO MAKE TOAST

We toast bread not merely to brown it, but to take out all the moisture possible, that it may be more perfectly moistened with the saliva and thus easily digested; then we brown it to give it a better flavour. If the slice be thick and carelessly exposed to a blazing fire, the outside is blackened and made into charcoal before the heat can reach the inside. The moisture is only heated, not evaporated, and makes the inside doughy and clammy; and butter when spread upon the bread cannot penetrate it, but floats on the surface, in the form of oil, and the result is one of the most indigestible compounds. The correct way is to have the bread stale and cut into thin, uniform slices and dry it thoroughly before browning it. Such toast, moistened with water or milk, may be easily and thoroughly acted upon by the digestive fluids.

EXERCISE IN COLD WEATHER

Many women who spend the best part of the day in the open air in summertime seem to think they must retire into their houses at the first touch of frost and cold, and do not emerge again during the winter unless obliged to do so. Once a week they venture outside to church and perhaps to market, but this seems to amount to the extent of their fresh-air excursions till the spring returns. Is there any wonder that such women have frequent heavy colds during the winter? One such woman was last winter engaged in a occupation that made it necessary for her to walk in all weathers a mile each day. She began the new regime with fear and trembling, only to find that she felt the cold less than ever she did before, and that her

usual severe attack of influenza forgot to visit her. The pure, fresh air acted as a tonic on her system, and she underwent a hardening process which prevented her being susceptible to every change of atmosphere. Even if a woman dreads the cold, she must make outdoor exercise a matter of conscience if she would keep health and spirits.

A HEALTHY OLD WOMAN

A New Hampshire woman, aged eighty years, when asked recently how she had kept herself so rigorous and healthy, replied: "By never allowing myself to fret over things I cannot help; by taking a nap, and sometimes two, every day of my life; by never taking my washing, ironing and baking to bed with me, and by oiling all the various wheels of a busy life with an implicit faith that there is a brain and a heart to this great universe, and I could trust them both.

BEES AS A BAROMETER

Few people are probably aware what an excellent barometer is afforded by a hive of bees. Even on the finest day they will not stir far from home if rain is in prospect.

Nec vero a stabulis pluvia independente recedunt

Longius, aut credunt caelo adventantibus Euris. Vergil

Should you see them hurray in all of a sudden, even though there be not a cloud in the sky, you may be sure that there will be a great storm before long.

If, on the other hand, you see them go about their business unconcernedly on the cloudiest day, you may stake what you like (your boots?) on the chance of the rain keeping off.

If the winter is to be mild, they put no wax against the entrance.

If the winter is likely to be severe, they shut up the entrance to their hive with a thick wall of wax, leaving an opening only large enough to let them in and out, one at a time.

DRAINING.

(By the Editor.)

From what I have said as to the way in which water gets into the drains, it will be evident that to cover the conduit, whether it be of pipes, stones or bushes, with a mass of porous material, will be time and labour wasted. The more thoroughly the duct is closed above, the less likely it is to

admit extraneous matters, such as sand and mud. My own practice, copied from the example of Mr. Parkes, the best draining engineer of his day, has always been to use a reasonably small conduit (condensed or tightly packed streams always run faster than free, broad streams); and to have the first layer of earth over the duct as firmly trodden down as possible. I give six inches by four inches as the size of the bush drain.—9 inches by six, for broken stones—because the materials will become compressed, in the first case, by the superincumbent weight of earth; and in the second, the return of the soil into the drains, however well managed, will always, more or less fill up the interstices of the stones. In pipe pipe drainage, we always use $1\frac{1}{2}$ inch—Parkes used 1 inch but at that size our clay would not stand drying without warping—and I hear from friends in England, that $1\frac{1}{2}$ pipes I laid in 1849 are acting perfectly now. It may seem curious to some, how so small a duct can run off a heavy fall of rain in 24 hours, as it ought to do. I cannot carry in my head the exact figures, but I remember well that the conclusion arrived at by Morton, inspector of drainage for the government loans, was, that a pipe the size of a lady's thimble, kept perfectly clear, was sufficient to bear off all the rain that ever fell in England on an acre of land during 24 hours. The object is, not to carry the water off with a rush, for that would, besides running the risk of choking the duct, draw along many of the most valuable parts of the soil; but to allow the water to sink gently and placidly through the ground, as the water acts in an ordinary domestic filter.

As to the fall to be observed in drains in ordinary fields in this province, any one who can make a ditch can be trusted to make a drain. I cannot help saying, that throughout the French-country the ditches are admirably made; and if the people in the Eastern Townships would take a lesson from the *habitants* in this art, they would be none the worse for it. I a loamy soil on gravel, and in a black peaty soil, I have often seen a field of 10 acres dried completely by a four feet ditch at each side.

Where, however, there is a doubt about the level of the bottom of a drain, a few pints of water thrown gently in will often decide the question—where spring exist, their own flow will settle the doubt. The uniformity of the fall can be tested, if thought worth while, by three levelling

staves, two of which should be about 2 feet high, and the other extending, with cross-heads 9 inches long. One staff is held perpendicularly at each end of the drain, and the extending one is adjusted and moved up the drain; the head drainer, or manager, can easily see from one end whether the fall has been equally followed, or not. But in practice, these accurate measures will seldom be found necessary; besides, I object *in toto* to a foot being set in the bottom of a drain, unless it is absolutely necessary. Some people are of opinion that the whole length of each drain should be bottomed out before the pipes or other ducts are laid. This is, doubtless, a correct practice during summer, or in dry weather; but when the land is full of moisture, I prefer placing the ducts and filling in, bit by bit, as the drain is dug; and for this reason—the caving in of the earth may, and most likely will, displace the sides of the drain, and it will have to be re-bottomed out—always a troublesome and annoying job, and very likely to be carelessly executed, unless the supervision be much more efficient than it usually is.

Stone drains are so expensive on account of their necessary width, and the quality of material required, cartage, &c., that I do not suppose many people will make them. Pipes are, after all, the cheapest in the long run. The only awkward part of the matter is, that they have to be paid for with cash. The price here has always seemed to me extravagantly high, considering that the principal makers were in the enjoyment of an annual “grant in aid” from the Quebec government. I allow that the pipes were well made; but they were twice as heavy as they need be; and that is a matter for consideration when the carriage by rail and route has to be paid for 40 or 50 miles. In Kent, England, within 15 miles of London, the price I used to pay for 1½ inch, of good quality, was \$4 per thousand; and a horse drew, in a cart, a thousand with ease; and good one-inch pipes, in Essex, were only \$3 a thousand.

In bottoming-out stone drains, the width should be greater than for bushes—9 inches, perhaps, would not be too much—and this on account of the difficulty of packing the material. The stones should be as round as possible, and the larger ones should be at the bottom. None more than 4 inches in diameter should be used; they should be rammed down firmly with a paviour’s rammer; and some of the smallest should be reserved for

the top, to be finished off at last, like the bush drains, with clay, and the firmest part of the sub-soil returned first, and well tramped down. A very costly job, and one that I should be sorry to recommend any one to undertake. The same may be said of those ducts of built up stones that I have seen in one or two places in the Province. They take an immense time to make, and, unless they are four square, i. e. with a bottom as well as sides and top, the earth soon rises into them from pressure at the sides, and they are closed for ever.

The drains for pipes are to be opened out as far as the fourth spit, about 36 inches, precisely as the bush-drains, but here advantage can be taken of the *semi-cylindrical tool*, which, being fifteen inches long, enables us to take out a very deep draw for the last one. Generally speaking, the foot need not touch the tool; a side thrust by the hands will be sufficient, unless the ground be very

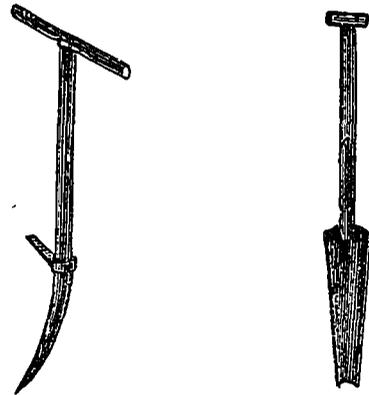


Fig. 1.—Tramp-pick. Fig. 2.—Semi-cylindrical spade.

hard and dry, in which case the tramp-pick should precede it. The bottom must be cleared of crumbs by the *semi-cylindrical draw scoop*, the drainer standing on the fourth spit, and clearing the bottom, as far as he can reach, of the remains of dirt, &c., left by the long spade; so that he never sets his foot on the cleared drain at all, but works backwards with his face towards the mouth of the drain, yard by yard, and leaves himself only the pipes to lay and the earth to return. Should any small pebbles be found at the bottom, they must be got out of the way, that the pipes may be well and truly laid; for the slightest crookedness in the conduit forms a dam in no time, and will very likely cause an accumulation of silt fatal to the continuity of the duct. Never allow a drain

to be diverted from its straight course. If a rock or large boulder intervene, blow it up—get rid of it some how or other, and pay particular attention to laying the duct in its former site, as the earth is sure to be more tender there, and the pipes will very likely sink and become useless.

We now proceed to lay the pipes. If the draw-scoop has been properly handled, the bottom of the drain will form a semi-cylinder, and the job will be easy enough: the layer, who should be the honestest workman to be found; one who will refuse to place a single pipe in an unfit bottom, should have all the pipes laid ready for him along the side of the drain: straddling across it, with his face to the outfall, he threadles a pipe on his *pipe-layer*, places it gently in his site, and adjusts it with care as closely as possible to its neighbour; and so on, as far as the drain is bottomed out.

All this, difficult as it is to describe in words, is easy to understand when once it has been seen in operation; and with four men, the whole affair goes on like clock work, after the first few rods have been opened. It will answer no one's purpose

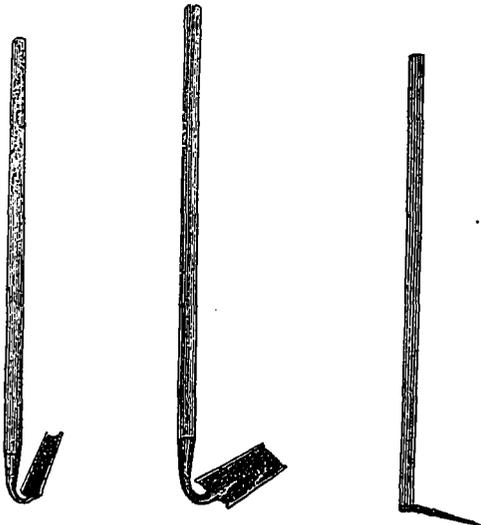


Fig. 3—Draw-scoop Fig. 4—Broadscoop Fig. 5—Pipe-layer

to set a single hand at this work. The supervision must be constant, and the more rapidly the business is carried on the less likely is the superintendent to go to sleep over it.

Up to the present time we have been sailing along with ease. We have met with no obstacles, except a stone or two, or a piece of hard pan. The tramp-pick or the ordinary one, or perhaps a blast, have soon rid us of these enemies. But a danger

now heaves in sight—a foe indeed; but convertible with care into a friend—I mean a *running sand*. Its enmity is displayed in an overwhelming desire to choke the pipes; but, if properly treated, it may be baulked of its aim; and as its presence always denotes a vein of *shattery* soil, it will admit of the drains being placed at wider intervals than where the soil is of the homogeneous texture. I do not mean that I like quick-sands. By no means; but they are not so terrible as they are usually thought to be; and I would treat them, when met with, in some such manner as this:

Before laying the pipes, make the bottom a little wider, say two inches, than usual, and lay on it narrow lengths of half-inch boards: place the pipes on the boards, which should be no longer than four feet, and fill up the interval between the pipes and the sides of the drain with the stiffest clay you can find, jamming it with any handy tool as hard as possible, but taking all pains to keep the pipes straight. To do this well is a difficult job, for not a foot must be set in the drain. Two men will manage better than one; the first to hold the pipes steady, at the junction of each pair, with the pipe-layer; the other to drop the clay into its place. The pipes should be covered with a thick coat of the stiffest of the soil, the whole should be well trodded down, and when the drain is three parts filled, one wheel of a heavy laden cart might be run up and down it—if the wheels are too narrow, a sort of *shoe*, or second tire, made of any pliant material, such as bark, might be added—anything and everything should be tried to consolidate the earth. It is a troublesome, laborious job, is draining a running sand, but few things pay better when well none.

I am afraid this is a very desultory article; but the fact is, that as I am describing what I have done years ago, I am obliged to jot down things as they occur to my mind; and I find that although my memory if a pretty good servant, it is rather irregular in its action.

Note—when a certain length of drain has been laid, before continuing work in the upper portion a strainer (a bunch of hay or straw) should be placed across the mouth of the last pipe, to prevent any silt from making its way into it; if the soil is quite dry at the time, this precaution will not be requisite, but it is as well to make a practice of it, and then it will never be forgotten when really necessary.

To be continued.

The Flock

LOSSES AT LAMBING TIME

Weather—no matter in what country—is the chief consideration in discussing the causes of the ills from which lambs suffer in the infantile periods of their lives. Sore mouths, joint ills, scour, and diseases of the respiratory organs (parasitic and inflammatory) are traceable to changes of temperature, wet and wind, and every year a large number of deaths occur from diseases which could not be developed under different conditions: viz., during genial weather.

Sore mouths in lambs are common, perhaps invariably associated with diseased udders of the ewes! but it may often happen, that the sore mouths being quite obvious, attract the farmers' attention, while the udders of the ewes being out of sight, escape observation, unless they become so much affected that the lambs' efforts to get its natural food are resisted by the mother, and the farmer is thus led to suspect some mischief which has really existed for some time without being discovered.

It is at least probable that the udder of the ewe is first in fault; but on this point the evidence is weak, and practical men say that either disease may precede the other. A lamb whose mouth becomes sore from nibbling wet and gritty roots, may have a wound which may infect the udder of its mother; and, on the other hand, a diseased condition of the udder, due to contact with dirt and moisture, may assume an infective form, and be communicated to the sucking lamb. There is no doubt but that the disease of the udder is contagious, and in France it is recognised as a contagious disease among ewes which are kept for dairy purposes. In this case the infection is conveyed from one ewe to another by the agency of the milkers. In the lambing pen this agency of transmission is of course wanting, and for this reason perhaps the infection does not spread to any extent as a rule. although outbreaks have been recorded of contagious *mammitis* in ewes, where a considerable proportion of the flock has been attacked.

Contagious mammitis in ewes is associated with the presence of a very minute micrococcus which pervades the whole of the diseased gland, and it has been recently ascertained that the same, or at

least a similar organism, exists in the diseased parts of the lips of lambs suffering from sore mouths.

Whether the disease affecting the udders of the ewes is due to contact with the sore lips of the lambs, or the lips suffer from contact with the udders of the ewes, is, from a practical point of view of very little consequence. It is certain that the damp cold soil is primarily responsible for the derangement causing congestion and inflammation which assume the infective character.

Treatment of sore mouths and diseased udders differs only in regard to details, the same principles of cure are applicable to each disease.

Change of position is a condition of success which must be provided for, if possible. While all the animals are herded together on ground which is becoming day by day more saturated with infective matter, and the ordinary cause of disease continues to act, there is only a remote chance of any good being done by treatment, therefore the diseased animals should be separated from the apparently healthy, and placed in a position where they can be attended to, and in which they will no longer be exposed to the immediate causes of the disease.

A comparatively simple kind of treatment is effectual in cases of sore mouth, if the disease has not advanced to the grangenous stage.

A weak solution of sulphate of copper applied freely to the sore lips is generally sufficient, or even a little common oxide of zinc ointment, in mild cases, will effect a cure in the improved condition of the animal's surroundings, viz: a warm, dry, and sheltered position. It must, however, be observed that if the lamb is constantly bringing the lips in contact with a diseased udder, there is little chance of cure; in fact, the milk from such a contaminated source, must be unfit for food, and, pending the treatment of the mother, it is desirable that the lamb be removed, and be fed artificially until it is able to take care of itself.

Contagious mammitis is in ewes a serious affection, productive of considerable mortality under the most favorable circumstances. In most attacks it has been found that most of the animals attacked died in spite of treatment; and the French shepherds who are experienced in the management of the disease, disdain all tentative methods, and proceed at once to cut across the diseased gland, completely down to the abdominal walls, and then dress the cut surfaces with a saturated solu-

tion of sulphate of copper. This severe treatment practically amounts to extirpation of the glands, and is only undertaken with the view of saving the ewe for the butcher. All hope of saving the animal for breeding purposes is abandoned as soon as the disease is recognised; and experience has shown that nothing short of extirpation of the diseased gland by deep sections and by the use of strong caustic, will succeed in saving the animal's life. On economic principles it is probable that no advantage is gained by this heroic plan of treatment. The loss of condition from the combined effects of the disease and the method of treatment must be serious, and, taking into account the cost of keep for a long time, and the expense attending the cure, it may be concluded that by the time the sheep is fit for slaughter it will cost as much as it is likely to realise.

Comparatively trifling derangements affect very young animals in a degree quite out of proportion to the apparent severity of the disease. This is the case with sore mouths. A similar unimportant malady, so far as the early appearances indicate, is the swelling of one or more joints of lambs, causing more serious fatality than in the other affection.

Joint-ill, as it is called attracts very little attention at the beginning. The young animal moves stiffly, and shows some difficulty in straightening the knees when rising from the kneeling position which it often assumes when sucking. Perhaps on account of the frequent contact of the knee-joints with the damp ground, they are in many cases the first to show weakness: but it must not be concluded that the disease evinces any tendency to become localised in any one joint: indeed careful *post mortem* examination has proved that all the principal articular surfaces are at various times affected; and, in some of the severe cases, cheesy deposits have been found in nearly all the joints, and in the lungs besides.

These facts have long been known to farmers and veterinarians: but it is only within the last ten years that any special attention has been directed to the subject of cause. From the earliest times joint-ill has been looked upon as the natural result of damp weather or contact with wet ground; and has so constantly been found in connection with closely wooded localities as to get the name of *wood-civil*: and it may be accepted as a fact that the disease is most rife in damp seasons and on

grounds which are badly drained, in fact wherever the soil becomes surcharged with moisture.

(To be continued.)

W. R. GILBERT.

WILTON SHEEP FAIR.

The above annual fair, which is still, probably, the largest Sheep Fair in England, was held on Monday last at the accustomed ground, near Salisbury. There was a large attendance, the farmers of the district, no doubt, being glad to settle down to the "routine" of life after the excitement of the military manoeuvres, which affected a very wide area indeed. We regret that we cannot report that anything like good business was done. As compared with Britford Fair, the fall in prices was considerable, from 5s. to 7s. generally, and in some cases as much as 10s. The long drought, no doubt accounted for the decline in the value of stock sheep, and the intense heat was responsible for a depreciation in the value of animals designed for the butcher. The prices realised for wether lambs were from 25s. to 46s., according to quality. Ewe lambs fetched 24s. to 40s.; mixed lambs, 28s. 6d. to 40s.; smaller sorts, 17s. to 28s.; draft ewes, 42s. 6d. to 44s.; young drafts, 35s. to 50s.; overyeared, 24s. to 38s. Ram lambs sold at from 3½ gs. to 11 gs. The number of sheep penned was between 47,000 and 48,000 an increase on the corresponding fair of 1897. The usual auctioneers—Messrs. Waters and Rawlence and J. T. Woolley—were responsible for a very large proportion of those sold.

AMONG THE FARMERS.

SHEPHERDING IN VERMONT.

There is a good feeling among sheep men in Caledonia Co. Many have kept a few sheep and they find a great inquiry for them of all grades. Shipments of wool from Lyndonville station aggregate about 200,000 lbs annually. Several wool manufacturing plants in the state are said to be doing well. L. B. Harris, who probably gets as high a price for his mutton as any sheep man in the country, writes F. & H. under date of Sept. 16: I have just brought home what sheep were on the mountain, a back pasture nine miles

away, and turned them into the home run. This should have been done a week ago, for there were about 60 ram lambs in the lot which should have been taken out sooner; they are a thrifty lot, will weigh from 80 to 100 lbs without any feed but grass, and are as well wooled and as thick as any I ever raised.

I use two imported rams last year of mature age, and the result has been most satisfactory. I will not quarrel with the breeder that uses a ram lamb. I have never seen bad results from it when ordinary care was used. But for a great flock of pure Shropshires, or any rugged lot of sheep, give me a sheep of some age. I have this year imported the best yearling I could buy in England shall use him on 50 of my ewes. I shall use a fine fellow, coming 8 years though, on the main flock.

And this leads me to the serious question of the fall care of a mixed flock of sheep, for in addition to the ewe, ewe lamb and ram lamb flocks, I have a large flock of heavy wethers that will have to dress 100 lbs each by New Year's. Now none of these can be confined for an instant in wet or foul yards, therefore years ago I built open sheds in the home pasture with a square hay barn attached, and there they stay the year through.

Bordering the pasture I have heavy fields of rape into which I can let the sheep when the feed gets poor in the fall and the gain they will make upon rape alone, with a chance to get a little rough grass in the pasture and access to salt at all times, is amazing. This rape will do them well until snow gets so deep they cannot get at it. Freezing does not hurt rape nor does eating part of the plant damage the rest of it. (1) Rape save other feed and gains the sheep faster and its healthier than any feed I know of. It is raised with little work and little care, but it must have a rich piece of land. There is but one way to raise rape: Make a piece of ground rich, harrow it every 10 days until June 25 to July 5, then seed with less than 2 lbs acre and brush lightly. (2)

Whatever you do, don't for an instant let the sheep go back in condition, and when the fall feed is gone have roots or ensilage to keep them going. You will then have no fears about the

result. A grave question soon rises with the flock master. What shall I use as a sire? Do not use a poor one, he is for the time being one-half the flock. A pure bred ram should always be used. He most likely will stamp his good points upon the lamb: but a poor ram is bound to be followed by poor progeny.

POULTRY BRIEFS (1)

Do not make the mistake of trying to keep your chickens small by starving them. Until they are fully feathered clear up to the tops of their heads, feed as though you wanted them to make roasters of, otherwise many of them will die while feathering. After this time you may be a little less liberal, but it is much better to keep growing chicks well fed and pushing along all the time.

It is not believed that any vegetable combination will fully take the place of meat in a hen's ration. It is easy to digest and the hen on active duty, manufacturing an egg in a day, must have the materials supplied in the most available form.

Farmers ought to supply many more eggs to the market than they now do, because they have better facilities than any other class to produce them, but it is safe to say that more than half the eggs and poultry produced in this province are obtained from the small towns and villages and from small flocks.

There is something to be known in properly selecting a male bird for the flock. If he has long, sickle feathers and developed early, the pullets from him will in all probability be early layers as the full hackle and long sickles denote early maturity. The comb is an indication of health and vigor and should be upright and in color, a bright scarlet red. He should have strong clean limbs with plenty of bone, unless of the Asiatic breeds which are feather legged. The whole appearance should indicate activity.

Feed plenty of green food and keep the gravel box and shell box well filled. Meat three times a

(1) We had sheep on rape, at Sorel, up to the 8th December in the year 1884.—Ed.

(2) 5 to 6 pounds. The plant *stem* is not what is wanted; the *leaves* are the valuable part.—Ed.

(1) Part of this was crowded-out of the last number. Ed.

week will help to stimulate your hens to better egg records.

* **

The White Leghorn and barred Plymouth Rocks are now considered to be the most popular breeds on the poultry forms of the United States. The Leghorn is especially the money-maker for farmers who depend more on the sale of eggs than of fowls for their profits.

* **

To secure the most profitable hens breed as far as possible from the best layers, most hens are from 30 to 37 hours in developing an egg. By careful attention it is believed a strain can be developed that will do the work in 24 hours. This is the desire of a good many up to date breeders of the utility hens, and the effort is being urged upon the farmers to attempt to bring about and produce the 200 eggs a year business, hence it is already claimed to have been done by several breeders.

S. J. ANDRES.

STARTING A FLOCK

This is the time of the year where many are thinking of starting a laying flock of hens or reinvigorating an old flock by the introduction of new blood. It is a good time to do this as the spring hatched chickens are of sufficient size and so well and fully feathered as to show clearly what kind of hens they will make and breeders are now anxious to sell before cold weather sets in and the heavier requirements of winter feeding come upon them. If you have no hens or only a few old scrubs which you have decided to kill off, then the first question that naturally arises is what breed should be bought. If the object is eggs and eggs alone, then you cannot go wrong in buying Leghorns, White or Brown. With these you will never be troubled with setting hens but you must make up your mind to fence your garden not merely with a four feet fence but with one at least six feet high, if you intend to keep the hens out of it, or you must have your hen house so far away from the garden that they will seldom come near it. They are the most active breed of fowls and are always on the move. As a consequence of this alertness, if the range is large they will provide themselves during the greater part of the year with very much of the food they require and seldom become too

fat to lay. Their close plumage and compact form also conduce to hardiness and they seldom suffer from cold. Their weak point is their small size if wanted for the table. As egg producers however, they are probably unequalled, and their eggs, though not so large as those of some other breeds, are yet large enough to sell readily on the market for a full price. If the object is eggs and broilers, then I would say buy Plymouth Rocks, Brahas, or Wyandottes. These breeds are all large, heavy ones. They are of a continued restful disposition and require only a very low fence to confine them. They are good layers and good setters but their setting propensities somewhat interfere with the quantity of eggs they will produce, but this is compensated for, if chickens are wanted, by the fact that with any of these breeds, you have chickens almost at any time of the year for they have been known to set in the fall of the same year they were hatched, and to have chickens running with them at Christmas. While they are hardy, they are not so little affected by cold as Leghorns, as their quiet disposition leads them to neglect that exercise wards off the effect of the cold. They should have warm quarters in winter and they will then lay when most other breeds are resting. If you have already a flock of good hens then all you need is the introduction of new blood. In making a selection of a rooster never buy anything but a pure bird of whatever breed you fancy. In this way, if you do not buy of the same breed as the hens, you will nevertheless get good blood and not breed scrubs, but merely cross bred birds. Many of these cross bred fowls are amongst the best layers that can be kept. A cross between the Plymouth Rocks and Leghorns makes excellent layers and table fowls. The cross should be made by running a Leghorn male with the Plymouth Rock hen. A cross of Games and Leghorns is a good one. They are good layers, the hens will set, and the chickens make good broilers. The male should be a large Game, say the Indian Cornish Game.

S. J. ANDRES.

OCTOBER

The month of October is the one where the early hatched pullets should begin to lay and this should be forwarded by careful attention and good feeding. The weather is now growing colder and every precaution should be taken to guard against disease.

Roup and all its attendant evils are ready to begin their work if yours is neglected. Cracks and crevices should be stopped up and no drafts allowed on the birds. More than one half of the losses in poultry keeping comes from neglect on this matter and sad and fatal results follow this neglect on the part of the farmer. When a bird is noticed sneezing or watery about the eyes and nostrils, separate it from the rest of the flock and place it in a warm room. Feed the warm soft feed, grit and charcoal. A stimulant may be given, sparingly or cayenne pepper or even black pepper may be used once a day in the mash or soft food. Tincture of iron in the drinking water is excellent for toning up the system. Continue the mash of clover and bran and vary the grain diet.

Feed green cut bones twice a week. Do not allow them to remain out in the rain so as to get their feathers very wet particularly during a spell of heavy fall rains such as we are apt to get at this time of the year, for Roup is a deadly enemy of the poultry yard often being followed by diphteria, tuberculosis and canker which is ruinous to your flock, often decimating it in a few days, generally taking off the best birds. I do not advise much doctoring with the fowls; better off with their heads and either bury deeply, or burn the carcass (burning is the safer). I will treat on the diseases and treatment of the sick fowls later on.

DEVELOPING LAYERS

The early hatched pullets are now large enough to permit of careful and intelligent selection. The culls should be disposed of and the best reserved for laying and breeding. If the cockrels have become sufficiently matured to be troublesome, they should be separated from the pullets and fattened for market. Although the price may be low now, it seldom pays to keep early hatched birds for fall and winter sales. To develop the pullets into good laying hens, an exclusive diet of corn must be avoided. They need bone and muscle, but to get enough of this act of corn, they must eat and undue quantity of it and this will produce too much fat. This caution must be heeded when the pullets have only limited run and but little pasture. Under these conditions, with the corn ration, green grass, clover, green fodder and some vegetables with milk and cut bone or meat meal must be supplied to secure a healthy development.

The farmer's flock that has the range of the fields, and access to a great variety of food, may thrive on a ration of corn because it is not their exclusive diet. We have often seen farmers yards and premises where for two or three hundred yards from the buildings and house the poultry had eaten every green thing, except weeds, that were not enclosed by chicken proof fences. Such runs become polluted and the fowls suffer from the lack of insects and green food. The owner feeds the usual corn ration and wonders why his flock does not thrive and the pullets do not lay. The development of pullets for laying is very much like that of heifers for giving milk. Concentrated grain diet overloads the digestive organs and produces fat. Bulky succulent food that which contains the bone and muscle making material is necessary to secure healthy digestion and thrifty growth.

The Dairy.

CREAM RIPENING.

As a general rule buttermakers allow their cream to "sour" or "ripen" before churning it. This is done in order to develop a more pronounced flavour and to recover more of the butter fat than would result from the churning of sweet cream.

This "souring" may be accomplished by allowing the cream to stand in a warm place for twelve or twenty-four hours, it may be hastened or accomplished at a lower temperature by the addition of a "starter" or "ferment." As is everywhere recognized to-day, the ripening of cream is simply a matter of bacteria growth, and whether, the cream is ripened in a proper or an improper manner depends upon the number and kinds of bacteria that chance to be in it at the beginning of the ripening, or that happen to gain access to it from the atmosphere or other external sources. Among the many different species of bacteria found in the cream there are a few whose growth or development in the cream produces there a pleasant, desirable aroma and flavour.

These species are seemingly fewer in number than the others, but it is to their presence that a good butter is due, and it is with little doubt largely the presence of these species in June cream and their absence in January cream that gives

June butter a better flavor than winter butter. Now, the butter-maker in ripening his cream will always produce in it a certain amount of acid from the lactic organisms, and even if he has no proper flavour producing species present the butter that he obtains will be a fairly good article, provided he does not happen to have any of the undesirable species present. He knows well enough that during certain seasons in the year he can obtain a butter that has no very bad taste, and yet that does not have the desirable flavour. No method at his disposal will enable him at such times to give his butter the flavour he desires. Under such conditions his cream, is affected with the neutral class of bacteria, while mischievous ones are absent as well as the desirable flavour-producing species. By proper care in barns and dairies the undesirable species may be in general kept out of the cream. By the use of cleanly methods in the cow barn and dairy we may depend upon the milk and cream containing a small quantity of bacteria and only wholesome ones.

Conn has found that winter cream and June cream contain a distinct *bacteria flora* in the same creamery ; that the species of bacteria in different creameries differ at identical dates ; that the species furnished a creamery by different patrons differ, and that, in short, the bacterial flora of a creamery is undergoing constant change. It is, of course, largely a matter of luck whether the cream at a given creamery chances at a certain time to have the high flavour-producing species present.

To eliminate this factor of luck from the ripening of cream, pure cultures have been prepared in laboratories, (both in the United States and in Europe,) of the bacteria that sour and give the desired flavour and aroma to cream, and these cultures have been used in practical experiments. When inoculated into the cream they sour it rapidly and produce at the same time a desirable aroma. In other cases forms of bacteria have been selected which impart a desirable flavour and aroma without materially aiding in souring the cream. In this case the lactic organisms commonly present in the cream are relied upon for giving it the desired acidity. An organism isolated by Conn, and named by him *Bacillus No 41*, has given very promising results, and has been adopted in a number of creameries in this country for ripening the cream. In the

use of *Bacillus 41* or *B. 41* as it is commonly called, a large culture of the organism is added to the ordinary cream, and the ripening is carried, on as usual. The result has been that souring is delayed, and the ripening may be continued longer and thus the flavour be improved, and a noticeably better product is obtained. The peculiar effect of this organism appears to be to add to the butter a flavour which the butter-maker describes as a "quick grass" flavour, such as he looks for in June butter. The aroma is not greatly affected. The pleasant flavour seems to be added to the butter in all conditions in which the experiments has thus far been made. It has been tried upon poor cream and upon good cream ; upon fresh cream and stale cream ; upon separated cream and upon gravity cream ; in creameries of the very highest character and creameries of a very much lower grade, and the verdict in all cases has been uniform. Wherever it has been added to the cream for ripening in the proper way there has been an improvement in the quality of the butter made in the individual creamery. The butter of a poor creamery has not, indeed, been brought up to the quality of gilt-edge butter, but it has been improved ; and even the gilt-edged butter of our highest class creameries has been pronounced better after the use of this bacillus in the ripening of its cream. Indeed, up to the present time it has been chiefly the better creameries which have adopted its use.

There is very little doubt that the ripening of cream by pure cultures of bacteria is sure to become more popular, for they make it possible for the butter-maker to obtain uniformity all the year round.

Both the acid ferments and *B. 41* are now put up in such form that they can be readily distributed to the creameries of the country. Their use is rapidly growing, and in my opinion it will not be long before it will become almost universal. (1)

H. WESTON PARRY.

Compton, Que.
Oct. 17th, 1898.

(1) But it must not be forgotten that too pronounced a flavour is not popular in England and still less popular in Scotland, where in the best houses, most of the butter is churned daily from cream taken from the previous day's milk: Ed.

The Farm.

MANURES

A summary and practical conclusions of the experiment at Rothamsted Farm (Herefordshire, England)

WHEAT.—*continued*

Mineral manures alone have added very slightly to the produce grown upon the unmanured land.

Manures containing nitric acid alone, or some compound of nitrogen which is easily nitrified, have considerably increased the crop.

The soil therefore contained a stock of minerals which the wheat crop were unable to use, owing to the insufficient supply of nitrogen in some available form.

Manures consisting of potash, phosphoric acid, and ammonia or nitrates, appear competent to grow large crops of wheat continuously.

A given weight of nitrogen as nitric acid, has produced more growth in the wheat crop than the same weight of nitrogen in salts of ammonia.

The amount of nitrogen supplied in the manures is very much in excess of the amount recovered in the increase of the crops.

After a certain amount of growth has been reached, each increase of crop requires a proportionately larger application of manure. When the price of grain is high, larger crops can be grown more profitably than when the price is low.

When barn-yard dung is employed to grow wheat, a considerably larger amount of nitrogen must be applied to produce a given increase in the crop, as much of the nitrogen contained in the dung is not in an active condition.

A given weight of nitrogen in the form of nitric acid, will produce more growth in the crop to which it is applied than the same weight of nitrogen in dung; but the influence of the nitrate upon succeeding crops will be much less.

There is no evidence to show whether the whole available effect of the nitrogen in one manure is greater than it is in the other.

In the absence of vegetation, or when applied to crops in excess of their requirement, both potash and phosphoric acid form insoluble compounds with the soil and become available for future crops.

In the absence of vegetation, or when the amount supplied is in excess of the requirements of the crop, nitrates and salts of ammonia do not appear to form permanent compounds with the soil, but, on the contrary, are liable to be washed out by rain, or to be otherwise lost.

The application of a larger amount of nitrogen, as nitrates or salts of ammonia, than the crop can make use of, does not appear to prevent the nitrification of the organic nitrogen of the soil.

The stock of nitrogen of the soil itself, therefore, may be reduced, although the amount of application of nitrogen may be much in excess of the amount of that substance removed in the crop.

When large crops of wheat have been grown by the application of nitrates or salts of ammonia, with mineral manures, the soil does not appear to have gained or lost fertility. Nitrification of the organic matter in the soil may have gone on as usual but the loss has been made good by the amount of the nitrogen stored up in the stubble and roots of the large crops so grown.

When dung is applied continuously to land, the accumulation of unexhausted fertility becomes very large, and the removal by the crops of the substance accumulated would extend over a long series of years.

Dung applied to land in the ordinary processes of agriculture will not be entirely exhausted until a considerable number of years have elapsed from the time of its application.

Permanent pastures

By the judicious employment of manures, both natural and artificial, arable land has been converted into permanent grass, not only without loss, but with some profit to the farmer.

The important constituents, nitrogen and phosphoric acid, were applied in the manures in larger quantities than they were removed in the crops; but potash in only about the same quantity as it was removed.

The application of dung not only compensates for much of the exhaustion from the removal of hay, but it has a beneficial influence on the botanical character of the herbage.

Although the grass has been mown every year for 30 years, there has been a considerable accumulation of fertility within the soil.

Analysis has shown that there has been an increase of nitrogen in the surface soil, beyond that which could be explained by excess applied in manure over that removed in crops, and by the

combined nitrogen coming down in rain, and the minor deposits from the atmosphere. Part, if not the whole, of this increase is probably derived from the subsoil by deep rooted plants, which afterwards leave a nitrogenous residue with the surface soil; or, possibly, some of it may have its source in the nitrogen of the atmosphere, brought into combination within the soil, under the influence of micro-organisms, or other low forms.

In laying down arable land to grass, especially if hay is to be removed, it is essential to supply, not only nitrogenous, but an abundance of mineral manures, and especially of potash, (1) a large quantity of which is removed in the crops, and must be returned. When the grass is not mown, but fed, the exhaustion is much less, but it is greater when consumed for the production of milk than when for that of store or fattening increase.

A. H. PLUMMER.

Compton, Sept., 1898.

(To be continued)

LUCERNE

ORIGIN—SUITABLE SOIL AND CLIMATE—SEED-BED—
TIME FOR CUTTING

The name of this plant is generally supposed to be derived from the canton or town of Lucerne, in Switzerland. But some great authorities controvert this opinion, although they are at a loss to account for its appellation. Lucerne was known to the ancient Greeks and Romans as a forage plant. We read of it in Virgil, and at the beginning of the Christian era it is written of by several agricultural writers. In Persia and other Eastern countries the plant is still used for horses.

This plant has been pretty extensively grown in England, but a few wet summers have diminished its culture although with the advent of drier seasons there is no doubt it will be much restored to favour. But at the same time the British farmer has never appreciated its merits to the same extent as his continental brethren. In part, no doubt, this is owing to climate, and in part to soil.

Lucerne is essentially a plant for dry climates and dry soils. Cold dry air has no bad effect upon it; but moisture, with or without heat, is directly

prejudicial. Its duration depends more upon the subsoil than upon the surface; indeed, the nature of the surface is of small account so long as the subsoil is calcareous. In some parts of the European Continent lucerne remains as good a crop twenty-five years after sowing as in the third year of its existence, but five years is the usual term, and seven years may be considered the fair limit of its vigorous life even on suitable land.

It is interesting to notice the different soils on which Lucerne thrives, but investigation will always prove that whatever the nature of the surface may be there is a substantial agreement in the subsoils where this plant flourishes.

The depth to which the tap-root penetrates is almost incredible. In the first season they will often go down two feet or more.

In many localities Lucerne cannot be cultivated successfully, and it will only be waging a fruitless war against Nature to attempt to grow it on impervious clay, or on any cold adhesive land.

Warm and calcareous soils are highly favourable to its growth, and a sheltered field, sloping to the south, will suit it to perfection, provided always that lime can be reached, (1) for this it must have.

Sometimes there is a strong desire to grow Lucerne on soil deficient in lime. To meet the requirements of the plant a heavy liming should be applied about six months before sowing; but the process is costly, and at best the effects are only temporary. The richer the soil the earlier will Lucerne come to full development, and land should be chosen in which the roots will be able to strike down without undue resistance.

The principal point in the culture of Lucerne is to secure a thoroughly clean seed-bed. Weeds soon ruin the plant, and therefore farm-yard or stable manure, although good in itself, is dangerous from the seeds it may contain. Ash of all kinds is beneficial, and, of course, artificial manures can be freely resorted to. Three hundred weight of superphosphate per acre is a good dressing. The best preparation is a crop of potatoes. As a rule, April is the best time for sowing, and the seed must not be deeply buried. In England, Lucerne is almost always sown alone, (2) while on the Euro-

(1) There is lime enough in almost all soils, except barren sands for plant-food. Ed.

(2) Not in our experience. Our dear friend and farm tutor, Wm. Rigden, who never had less than 30 to 40 acres, always sowed it with a grain-crop. Ed.

(1) Fairly manured land, unless in the case of very light sands or gravels, needs no potash.—Ed.

pean Continent a thin seeding of grain is often put in with it. A great Agriculturalist from the county of Norfolk in England—Mr. Clare Sewell Read—has been most successful in obtaining a plant of Lucerne by sowing it in wheat, while he has never succeeded with it in barley, and seldom when sown alone. He attributes the failure among barley to the closer sowing of this grain as compared with wheat; and the failure when sown alone to the plant being smothered by annual weeds.

When well established the herbage must on no account be allowed to grow old before being cut; in fact, it should not be allowed to flower. Lucerne is rarely made into hay, as the leaves are lost during the drying, (1) and the process is exceedingly wasteful.

The most convenient and profitable way of

(3) Not if cut just as the bloom is beginning to show. Treatment: turn once and carry without cocking if possible, just as for clover. Ed.

growing it is to sow a patch near the homestead, so that the daily portion when cut has only to be carried a short distance to the stables. The plant is peculiarly rich in albumen, and is even more nutritious than Red Clover. Given alone, and especially when very young, there is a possibility that cattle fed upon it may become blown, but when fed with good oat or barley chaff, it makes a wholesome and valuable food.

Several cuts can be made in a year. It is not worth while to sow Lucerne unless the plant can remain down for at least three years.

The quantity of seed sown to the acre averages from 10 to 20 lbs and if sown in the spring can be cut in the following autumn. Lucerne is perennial, deep rooted, and can resist drought (if it can get its roots down deep enough. Ed.)

WALTER S. G. BUNBURY,
Compton Model Farm.

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